REDESCRIPTION OF *HEMEROBIUS AUSTRALIS* WALKER (NEUROPTERA, HEMEROBIIDAE)

By T. R. New
Dept. Zoology, La Trobe University, Bundoora, Vic. 3083.

Abstract

Both sexes of *Hemerobius australis* Walker are redescribed and figured. The genus *Hemerobius* is confirmed from Australia, and *H. australis* belongs to a southern hemisphere species group of this genus.

Introduction

The genus *Hemerobius* L. has not been confirmed from Australia since Walker (1853) described *Hemerobius australis*, and later workers have doubted the generic placement of that species. Thus, Tillyard (1916) did not include *Hemerobius* in his key to Australian hemerobiid genera and, to judge from a footnote in his paper (1916: 307), considered that '*H. australis*' could be an aberrant specimen of the abundant *Micromus tasmaniae* (Walker), although noting the fore wing venational differences implied in the original descriptions. Likewise, Tjeder (1961) commented that *Hemerobius* is absent from Australia. A further source of doubt has been the data included in the original description, namely 'New Holland: presented by the Entomological Club'. The insects presented at that time are from various parts of the world, including North America, and there are places named 'New Holland' in both Illinois and Pennsylvania. There is thus the possibility of an error in label interpretation, as occurred with a similarly-labelled species of *Chauliodes* (Megaloptera) (McLachlan 1867).

The type of *H. australis*, however, is clearly labelled 'Australia', and does not convincingly resemble any described North American *Hemerobius* species. It is in poor condition and lacks antennae, legs except the fore femora, hind wings and abdomen; much of the remaining body is dirty and covered with gum. During a recent visit to the British Museum (Natural History) four Queensland specimens of a *Hemerobius* were found in unsorted material from the Tillyard collection, and these are clearly referable to *H. australis*. The following augmented description, which confirms the presence of *Hemerobius* in Australia, is based on these examples.

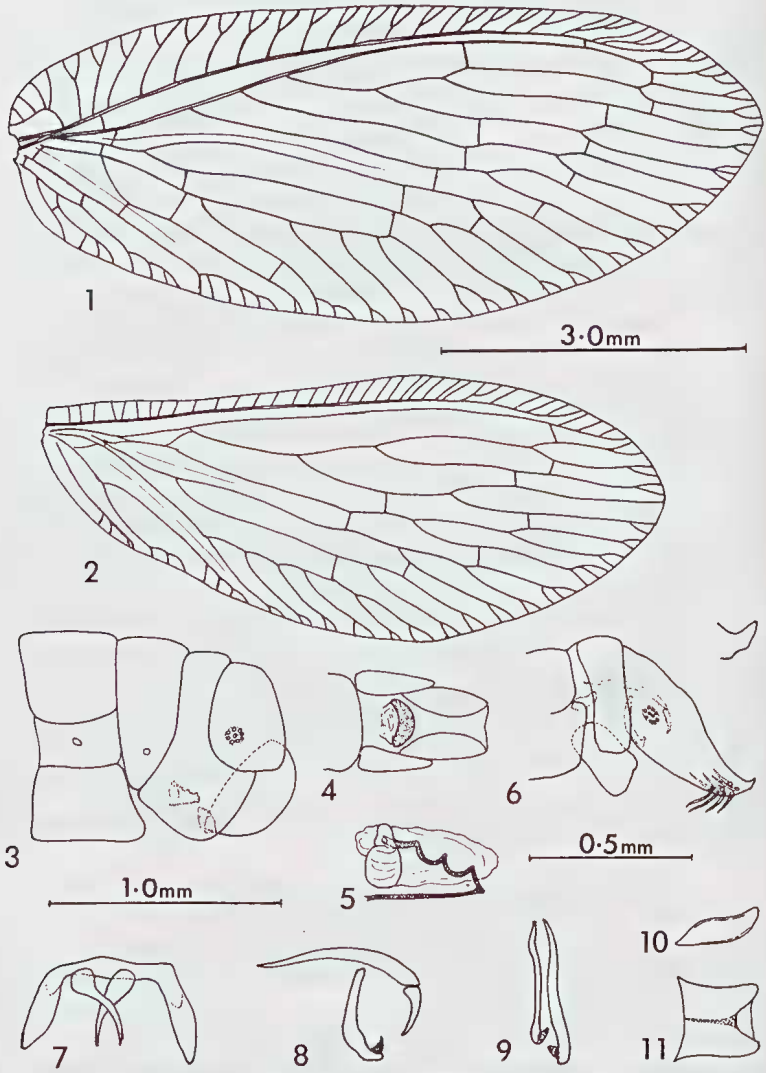
Hemerobius australis Walker 1853: 289

(Figs 1-11)

Coloration (dry). Pale buff. Eyes dark grey. Genae dark brown. Sides of pronotum dark brown. Legs pale, except extremities of all tibiae slightly darkened. Fore wing pale, pterostigma not darkened; all branches of Rs and more posterior longitudinal veins with alternating dark and pale lengths (relative lengths about 1: 2), each dark length with traces of pale greyish brown sagittate shading on adjacent membrane. Gradates dark brown or grey, slightly shaded; membrane greyed behind Cu_2. Hind wing slightly fumose, unmarked, venation pale greyish brown. Abdomen buff.

Morphology. Fore wing length ca 7 mm, venation as in Fig. 1. Hind wing venation as in Fig. 2. All tibiae swollen, the hind tibiae markedly so.

FEMALE: Abdominal apex as in Fig. 3; ectoproct with field of 9 small trichobothria; gonapophyses laterales broadly rounded. Subgenitale (Fig. 4) arcuate, transverse and well-developed; margin of sternite VII transverse. Spermatheca (Fig. 5) small, membranous but with duct well-sclerotised.



Figs 1-11. *Hemerobius australis* Walker. (1, 2) wing venation: (1) fore wing; (2) hind wing; (3-5) ♀ genitalia: (3) apex of abdomen, lateral aspect; (4) apex of abdomen, ventral aspect to show subgenitale (shaded); (5) spermatheca; (6-11) ♂ genitalia: (6) apex of abdomen, lateral aspect with insert of apex of anoprocessus; (7) gonarcus and arcessus, posterior aspect; (8) genitalia, lateral aspect; (9) parameres, posterior aspect; (10, 11) hypandrium internum, lateral and ventral aspects. (Trichosors omitted from venation figures.)

MALE: Abdominal apex as in Fig. 6; ectoproct elongate, cataprocessus absent, anoprocessus small and tapered dorsally; a field of 10 small trichobothria; a group of about 8 thickened setae on inner margin near apex. Gonarcus (Figs 7, 8) with strongly reflexed lateral arms; arcessus (Figs 7, 8) relatively short, represented by two ventrally directed sinuous tapered rods. Parameres (Figs 8, 9) slender, sinuous and not strongly divergent, with slight hook at ventral edge. Hypandrium internum (Figs 10,11) short, with ventral median keel, apex slightly emarginate.

Material examined. Holotype, sex indeterminate, 'Australia, Ent. Club. 44-12'; 1 ♂, Queensland, Ingham, 13.vi.30; 2 ♀♀, 1 sex indet., Queensland, Mt. Gibbs, 20.iv.30; all in British Museum (Natural History), London.

Comments

H. australis belongs to a small southern hemisphere group of *Hemerobius* which lack a cataprocessus on the male ectoproct. It is thus similar to several species from southern Africa (Tjeder 1961), mainland Chile and Argentina (Nakahara 1960, 1965) and Robinson Crusoe Island (Handschin 1955). This species group is now known from the major regions of the southern hemisphere and appears very distinct from the numerous northern species of *Hemerobius.*

H. australis is most similar to *H. rudebecki* Tjeder, *H. abditus* Tjeder and *H. chilensis* Nakahara, but differs from all on details of genitalia. The anoprocessus of *australis* is more pronounced than in any of these species, which all lack the group of thickened setae on the male ectoproct. This condition is reminiscent of some species of *Wesmaelius* [represented in Australia by *W. subnebulosus* (Stephens)] by lacking a fore wing crossvein between M and the base of the first branch of Rs. It is separable from *Micromus* Rambur (the genus containing the most abundant and widely-distributed Australian hemerobiids) by the form of the fore wing radial sector and the presence of a recurrent humeral vein. In *Micromus*, the fore wing Rs has four to six branches from its stem. In *Hemerobius* there are only three branches, with the distal dividing into three as in Fig. 1.

Acknowledgements

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